Wetlands

Affected Environment

The National Wetlands Inventory (NWI) program identified 33 ***wetlands*** within the proposed project corridor (Figure 3-37). Field surveys, conducted to verify the presence of NWI mapped wetlands, confirmed the presence of most of these wetlands. Two areas mapped on the NWI are upland, rather than wetland areas. Twelve wetlands not identified on the NWI were found during the field surveys. Thus, this analysis finds that there are 43 wetlands in the corridor. Table C-1 in Appendix C lists the wetland areas identified within the corridor.

Most wetlands within the corridor are ***isolated***, depressional wetlands that are flooded by precipitation and/or snowmelt. Most of the wetlands within the corridor are ***seasonally*** or ***semi-permanently flooded***, and a few are either ***temporarily flooded*** or ***permanently flooded***.

The plant species and associations found in wetlands depend on the ***hydrology***. Most wetlands within the corridor are dominated by herbaceous vegetation (***emergent wetlands***), with few to no shrubs or trees. Some emergent wetlands have shrubs and some aspen present as a narrow band at the edge of portions of the wetland. A few wetlands within the corridor have trees (***forested wetlands***) or shrubs (***scrub/shrub wetlands***) as the predominant vegetation (Table C-1 in Appendix C). Open water areas in the center of wetlands are commonly bare of vegetation.

Emergent wetlands are typically dominated by spikerush, tule, cattail, rushes, common silverweed, reed canarygrass, giant wildrye, and western blue flag iris. Scrub/shrub wetlands and some emergent wetland buffers are dominated by snowberry, wild rose, red-osier dogwood, wax currant, golden currant, and willow, with some areas of quaking aspen. The only tree species noted in wetlands are quaking aspen and spring birch. The scientific name of all species mentioned in the text can be found in Table C-2 in Appendix C.

Two unique wetlands, Wetlands 28 ands 29 between Structures 40/3 through 40/4, are located in the bottom of holes in the basalt bedrock. These holes, approximately 100 and 200 feet in diameter, may have been produced by a ***vortex*** of Ice Age flood water, which had enough force to scour and remove rock like a drill. These holes are about 20 feet deep and have steep, rocky walls. Although both wetlands appear to have the same origin, are at the same elevation, and occur within 200 feet of each other, they have different vegetation. The smaller wetland (Wetland 29) is dominated by aspen with a shrub dominated edge, whereas the larger wetland (Wetland 28) is dominated by spring birch associated with a variety of other wetland and upland species.

Some wetlands in this area are locally important because they function as a source of water in an arid environment. Isolated wetlands are particularly valuable to waterfowl and migratory birds and also provide habitat for resident birds, amphibians, and reptiles. Two large wetland

complexes (Wetlands 26 and 30), located in corridor mile 40, are permanently flooded wetlands, providing important wildlife habitat. Dominant vegetation in these wetlands includes tule, spikerush, western blue flag iris, Nootka rose, snowberry, and quaking aspen.

Riparian wetlands occur along Coulee Creek, the Spokane River, Spring Canyon, and along a perennial seep near Squaw Creek. Typical riparian wetlands are dominated by aspen, Nootka rose, and red-osier dogwood associated with various herbaceous species. The Squaw Creek spring supports a scrub/shrub wetland dominated by willow, Nootka rose, and wax currant.

Most wetlands in the corridor are undisturbed and in excellent condition. They are vegetated primarily with native species, although some wetlands have been invaded by reed canarygrass. Some wetlands were previously disturbed when the existing access roads were constructed, some of which go through the edge of wetlands. It is possible that the construction of some access roads enlarged wetlands due to the barrier that the road imposed to the flow of surface waters.

Environmental Consequences

Direct and indirect impacts to wetlands could occur during construction, operation, and maintenance activities for the proposed 500-kV transmission line and associated structures. The proposed transmission line right-of-way would cross valleys, depressions, stream channels, wetlands, and springs. The conductor would span wetlands, and new structures and new access roads would be sited to avoid wetlands.

Wetland scientists worked with design engineers during the design phase of the proposed project to situate roads and structures in upland areas to avoid impacts to wetlands. Some wetlands occur near existing roads and proposed structures, but with standard best management practices, impacts are expected to be minimized or eliminated at most sites. Wetlands will be clearly depicted on project maps as sensitive areas with specific restrictions on construction activities near wetlands. A field survey will be conducted prior to construction to stake or flag the boundaries of all wetlands within the corridor that could be directly or indirectly impacted by construction activities.

See Table C-1 in Appendix C for wetland and structure locations and potential impacts to wetlands from construction activities.

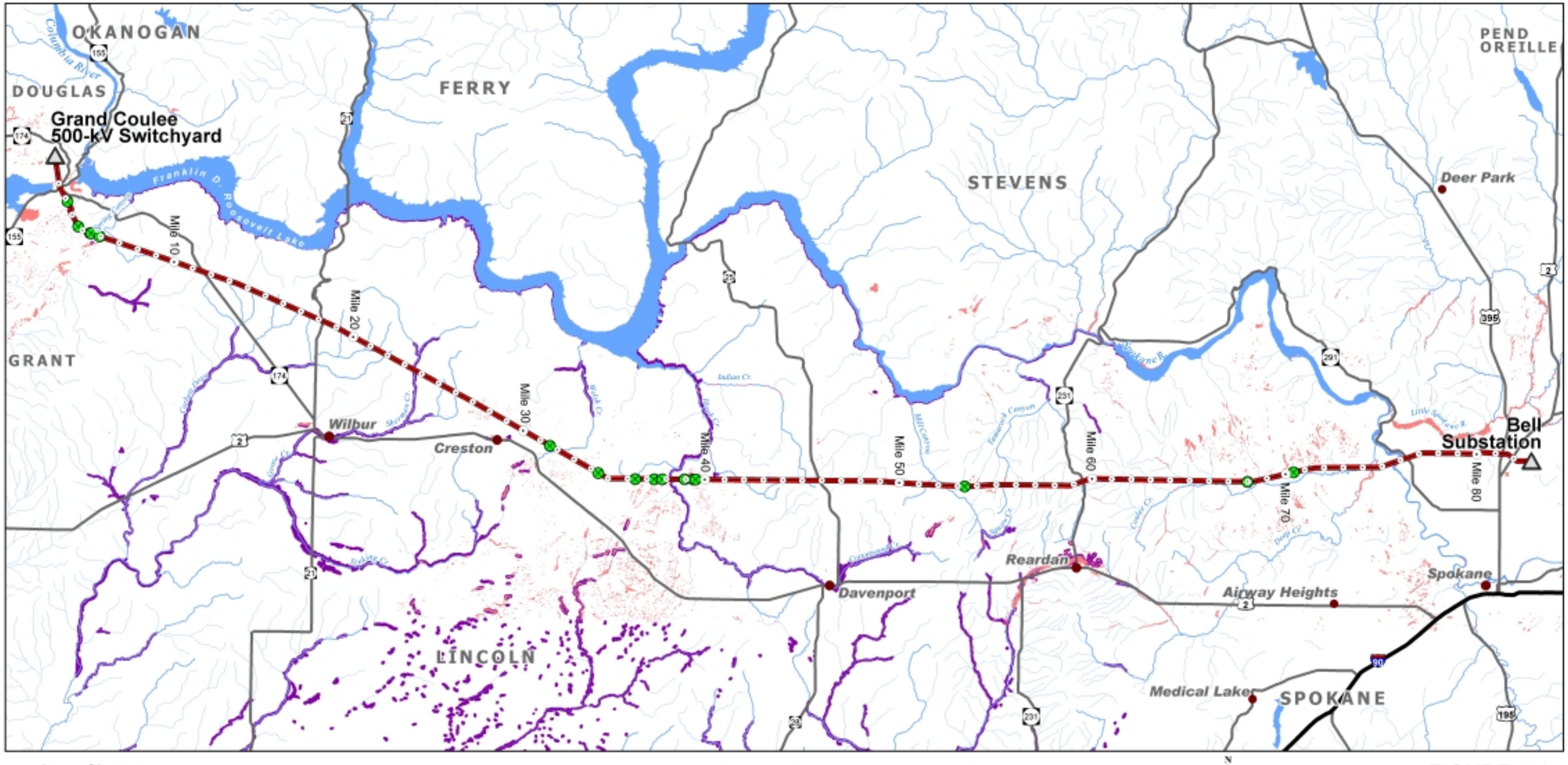
Impact Definitions

A **high** impact would occur under the following circumstances:

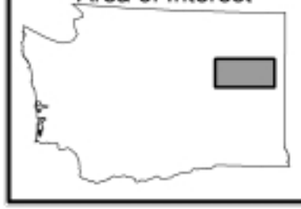
- Wetland hydrology, wetland vegetation, and/or wetland soils would be extensively or permanently altered by excavation or fill.
- Wetland functions would be permanently impaired.

GRAND COULEE - BELL 500kV TRANSMISSION LINE PROJECT

WETLANDS & FLOODPLAINS



Area of Interest



Data Source: U.S.G.S Digital Line Graphs, Washington Dept. of Natural Resources, Bonneville Power Administration Regional GIS Database. Wetlands derived from NWI Wetland inventory and field inspection.

- Mile Marker
- Substation or Switchyard
- Major Road
- Grand Coulee-Bell Corridor
- COUNTY BOUNDARY
- Field Identified Wetlands
- 100 Yr. Flood Hazard
- NWI Identified Wetlands

N W E S

SCALE 1:325,000

0 2 4 8 12 16 Kilometers

0 2 4 8 12 16 Miles

FIGURE 3-37

- Recovery is generally not feasible and mitigation would be required to replace lost wetland functions.

A **moderate** impact would occur under the following circumstances:

- Wetland hydrology, wetland vegetation, or wetland soils would be slightly or temporarily altered by vegetation disturbance or the introduction of sediments.
- Wetland functions would be temporarily impaired.
- Recovery generally would require restoration and monitoring.

A **low** impact would occur under the following circumstances:

- Wetland vegetation or soils would be altered temporarily by vegetation crushing and soil compaction.
- Wetland functions would be not impaired.
- Recovery would occur naturally and would not generally require any restoration activities.

No impact occurs if wetlands would not be directly or indirectly affected by towers and related construction, access roads, or operation and maintenance of the transmission line.

Impacts

Towers and Related Construction

Removal of existing wood pole structures would result in direct and indirect impacts to wetlands. Direct impacts could result from crushing vegetation or soil compaction during the removal and access to the old wood pole structures. Typically, existing wood pole structures would be excavated or cut off 2 feet below ground level and holes backfilled with native material. However, wood pole structures located in or adjacent to wetlands, such as Structures 32/6, 40/5, and 54/9, would be cut off at ground level. The wood poles in these locations would be dragged out or lifted out by crane to avoid bringing in construction equipment that would compact soils within the wetland. Indirect impacts could occur if vegetation was crushed to the extent that noxious weeds could become introduced. The impact level resulting from the removal of existing wood pole structures would be low to moderate.

Construction of new towers could result in indirect impacts to wetlands. Typically a 0.5-acre radius around each tower would be disturbed for tower installation. Approximately five structures would be constructed within each mile of corridor. The total area disturbed for the construction of towers would be about 210 acres out of the 1,528 acres within the corridor, with about 85 acres of disturbed areas occurring in native habitats. Construction areas would be designed to avoid wetlands. Indirect impacts could occur if erosion occurred at the construction

areas and affected water quality or covered wetland vegetation. The impact level resulting from the construction of towers would be low.

Construction of new towers within wetland buffer areas could result in indirect impacts to wetlands. All wetlands would be spanned by the conductor and towers would be placed in upland areas. Tower pads constructed within wetland buffers could alter overland water flow patterns, thereby increasing or decreasing wetland hydrology that could change wetland plant communities. Indirect impacts could result from the removal of wetland buffer vegetation. The reduction of vegetated buffers adjacent to wetlands could increase overland water flow and increase the likelihood of silts and sediments entering wetland surface waters and degrading water quality. Impacts would be reduced if the removal of the vegetation is done so that the roots are left intact. With the roots in place, the soils would be less likely to erode and the plants could resprout, recreating the vegetative buffer. Other indirect impacts could occur if oils and pollutants from machinery entered surface water, potentially affecting water quality. The impact level resulting from the construction of tower pads would be low to moderate.

Conductor tensioning sites and staging areas would result in no direct or indirect impacts to wetlands. Although the exact locations are unknown, these areas would not be placed within 400 feet of wetlands. The impact level resulting from conductor tensioning sites and staging areas would be no impact.

Road Construction

Construction of new access roads within and outside of the corridor would result in no direct or indirect impacts to wetlands because it is anticipated that any new access roads would avoid wetlands. However, if it is later determined that new access roads need to be built within wetlands, all necessary permits would be obtained. Direct impacts would result from the removal of wetland vegetation and the filling of wetlands within the new access road footprint. Indirect impacts would result from removal of wetland buffer vegetation or if oils and pollutants from machinery entered surface water.

Construction of temporary spur roads would result in no direct or indirect impacts to wetlands. No temporary spur roads are proposed to be built within wetlands, but it is possible that spur roads may need to be constructed within wetland buffers, which would be an indirect impact. However, if it is later determined that temporary spur roads need to be built within wetlands to access old structures for removal, all necessary permits would be obtained. Direct impacts would result from the removal of wetland vegetation and the filling of wetlands within the spur road footprint. Indirect impacts would result from removal of wetland buffer vegetation or if oils and pollutants from machinery enter surface water.

Improvements to existing access roads would result in direct and indirect impacts to wetlands (Table C-1 in Appendix C). Direct impacts could result from maintenance of access roads directly adjacent to wetlands. Road maintenance activities within wetlands would be limited to

blading, grading, or rocking within the footprint of the existing road. Although no filling of wetlands is proposed at this time, some sediments could be introduced into wetlands immediately adjacent to roads (e.g. Wetlands 8 and 21). These impacts would be short term, and wetland functions would not be severely impaired. Some restoration and monitoring may be necessary in individual wetlands such as Wetlands 8 and 21. The impact level resulting from improvements to existing access roads would be low to moderate.

There are possible direct impacts to Wetland 4 from access road construction, because the access road needs to be widened to accommodate the equipment that will be used to install the new towers. The southern boundary of the wetland is five feet north of the current road. To avoid filling the wetland, the road would be widened within uplands on the side opposite the wetland. To reduce potential impacts due to sedimentation, best management practices, such as the installation of a silt fence or the use of geotextile fabric, would be followed to prevent or reduce the amount of sediment entering the wetland. The impact level to Wetland 4 would be low to moderate.

Indirect impacts could result from the disturbance of soils adjacent to wetlands from construction vehicle traffic. Stormwater runoff could cause sedimentation in wetlands; however, erosion control measures would be used during the rainy season in areas where the road is adjacent to wetlands. Therefore, impacts would be minimized or eliminated at most areas. The impact level resulting from soil disturbance would be low.

Installing/replacing culverts would result in no direct or indirect impacts to wetlands because no culvert replacements within wetlands are proposed. However, wetlands delineations would be conducted in areas where culverts are proposed to be replaced to determine if wetlands are present. If it is determined that wetlands do exist, all necessary permits would be obtained. The impact level could be low to high.

Operation and Maintenance

Operation of the new transmission line would not result in direct or indirect impacts to wetlands. The impact level resulting from operation would be no impact.

Maintenance of the new transmission line could result in direct and indirect impacts to wetlands. Direct impacts could result from vegetation maintenance including clearing of vegetation or the application of herbicides for noxious weed control. Most wetlands and wetland buffers within the corridor are dominated by herbaceous and scrub/shrub vegetation that are generally compatible with the vegetation height requirements for conductor clearance and, therefore, would not need to be cut, causing no impact. Where long conductor spans are required to span large drainages, individual trees may occasionally need to be cut to maintain required conductor clearance above trees. Such tree removal would be a low to moderate impact. If herbicide application is required, appropriate buffers would be used to keep herbicides out of wetlands. Indirect impacts could result from the use of access roads for tower maintenance. This could

potentially introduce sediment into wetlands through surface runoff, potentially affecting water quality. The impact level resulting from maintenance activities would be low to moderate.

Environmental Consequences of the Alternative Action

Wetland impacts would be the same for the alternative action.

Cumulative Impacts

Incremental losses and degradation of wetlands over time have depleted wetland resources. Some wetlands were previously impacted by construction of the existing lines (from access road construction and placement of structures in wetlands) and from agricultural activities. Wetlands would be impacted by any projects within the Columbia Basin that affect wetland functions and values, including the filling of wetland areas. Although the amount of wetlands impacted within the area is unknown, information from the US Army Corps of Engineers (USACE), Spokane District, on the amount of wetlands that have been filled in Lincoln and Spokane counties has been requested (personal communication, T. Erkel, USACE, July 8, 2002).

Independent of the proposed project, BPA will replace an existing culvert off of the right-of-way within Wetland 16. The culvert replacement will fill a portion of the wetland to accommodate the larger culvert needed to prevent road erosion during high flow events.

Mitigation

The following standard mitigation measures would minimize wetland impacts.

- Before construction, wetlands with the potential to be impacted will be identified and flagged on the ground by a wetlands specialist.
- Avoid construction within wetland and wetland buffers to protect wetland functions by avoiding wetlands, where possible.
- Locate structures, new roads, and staging areas so as to avoid waters of the U.S., including wetlands, where possible.
- Limit disturbance to the minimum necessary when working in or next to wetlands.
- Avoid mechanized land clearing within wetlands and riparian areas to avoid soil compaction from heavy machinery, destruction of live plants, and potential alteration of surface water patterns to reduce groundwater turbidity risk.

- Apply erosion control measures such as silt fence, straw mulch, straw wattles, straw bale check dams, other soil stabilizers, and reseeding disturbed areas as required (prepare a Stormwater Pollution Prevention Plan).

- Regularly inspect and maintain project facilities, including the access roads, to ensure erosion levels remain the same or less than current conditions.

- Avoid refueling and/or mixing hazardous materials where accidental spills could enter surface or groundwater.

- Use existing road systems, where possible, to access tower locations and for the clearing of the transmission line alignment.

- Avoid construction on steep, unstable slopes if possible.

- Place tower footings on upland areas and limit access road construction adjacent to wetlands, if possible.

- All excavated material not reused would be deposited in an upland area and stabilized.

- Where feasible, top trees instead of removing trees so roots and soil remain intact.

Environmental Consequences of the No Action Alternative

Current levels of disturbance to wetlands associated with ongoing maintenance activities for the existing transmission line, substations, and right-of-way would continue under the No Action Alternative. This could include localized soil disturbance, potential sedimentation, and weed species introduction due to activities such as vehicular traffic, replacement of transmission structures, vegetation management, and access road improvements. No new impacts to wetlands are expected under this alternative.

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